What is claimed is:

1. High-voltage direct current cable insulation comprising:

a blend of or which is made from a blend of

(a) at least one ethylene copolymer, having a density of less than about 0.900grams/cubic centimeter, a melt index of from about 0.5 to about 10grams/10 minutes, a crystallinity of less than about 10 percent and a catalyst residue of less than about 1000 ppm, selected from the group consisting of

(i) ethylene/alpha olefin copolymers and

(ii) nonpolar, low crystalline ethylene copolymers selected from the group consisting of ethylene/propylene copolymer and ethylene/styrene copolymer and mixtures thereof;

(b) at least one polar polymer modifier in an amount effective to provide an insulation made with the blend with an enhanced field conductivity and enhanced space charge leakage at high fields relative to an insulation made with a blend which does not include a polar polymer modifier; and

(c) at least one ion scavenger in an amount effective to reduce ionic mobility relative an insulation made with a blend which does not include an ion scavenger,

wherein the ethylene copolymer, the polar polymer modifier, and the ion scavenger being in amounts to provide the cable insulation with a charge density of less than 2 Coulomb/mm^3 measured by a pulsed electro acoustic method after 24 hours with either positive or negative 20 kV/mm.

2. High-voltage direct current cable insulation comprising:

a blend of or which is made from a blend of

(a) at least one ethylene/alpha olefin copolymer having a density of less than about 0.900grams/cubic centimeter, a melt index of from about 0.5 to about 10grams/10 minutes, a crystallinity of less than about 10 percent and a catalyst residue of less than about 1000 ppm;

(b) from about 0.1 to about 15 weight percent of at least one polar polymer modifier having at least one polar component; and

(c) from about 0.05 to about 0.5 weight percent of at least one ion scavenger having at least one chelating component,

wherein the ethylene/alpha olefin copolymer, the polar polymer modifier, and the ion scavenger being in amounts to provide the cable insulation with a charge density of less than 2 Coulomb/mm^3 measured by a pulsed electro acoustic method after 24 hours with either positive or negative 20 kV/mm applied.

3. The high-voltage direct current insulation of claim 1 or 2, wherein

(a) the polar polymer modifier is selected from the group consisting of (i) a polymer having a density of less than 0.900grams/cubic centimeter with at least one side group selected from the group consisting of hydroxyl, carboxyl, styrenic; (ii) a polymer having a density of less than 0.900grams/cubic centimeter and at least one side group which is a residue of maleic anhydride, vinyl acetate or vinyl acrylate; (iii) a polylactone resin and; (iv) mixtures thereof, and

(b) the ion scavenger has at least one chelating group.

4. The high-voltage direct current insulation of any of claims 1 - 3, wherein the ethylene copolymer is crosslinked.

5. A high-voltage direct current cable comprising:

(a) an electrical conductor; and

(b) cable insulation comprising

a blend or which is made from a blend of

(i) at least one nonpolar, low crystalline ethylene copolymer selected from the group consisting of ethylene/propylene copolymer and ethylene/styrene copolymer and mixtures thereof, the ethylene copolymer having a density of less than about 0.900grams/cubic centimeter, a melt index of from about 0.5 to about 10grams/10 minutes, a crystallinity of less than about 10 percent and a catalyst residue of less than about 1000 ppm;

(ii) at least one polar polymer modifier having at least one polar component in an amount effective to provide an insulation made with the blend with an enhanced field conductivity and enhanced space charge leakage at high fields relative to an insulation made

with a blend which does not include a polar polymer modifier; and

(iii) at least one ion scavenger having at least one chelating component in an amount effective to reduce ion mobility relative to an insulation made with a blend which does not include an ion scavenger,

wherein the ethylene copolymer, the polar polymer modifier, and the ion scavenger being in amounts to provide the cable insulation with a charge density of less than 2 Coulomb/mm^3 measured by a pulsed electro acoustic method after 24 hours with either positive or negative 20 kV/mm applied.

6. The high-voltage direct current cable as recited in claim 5 wherein the ethylene copolymer is crosslinked.

7. A method for providing a cable insulation with a charge density of less than 2 Coulomb/mm^3 measured by a pulsed electro acoustic method after 24 hours with either positive or negative 20 kV/mm applied, the method comprising:

(a) mixing

(i) at least one ethylene/alpha olefin copolymer having a density of less than about 0.900grams/cubic centimeter, a melt index of from about 0.5 to about 10grams/10 minutes, a crystallinity of less than about 10 percent and a catalyst residue of less than about 1000 ppm.

(ii) from about 0.1 to about 15 weight percent of at least one polar polymer modifier having at least one polar component;

(iii) from about 0.05 to about 0.5 weight percent of at least one ion scavenger having at least one chelating component,

wherein the ethylene/alpha olefin copolymer, the polar polymer modifier and the ion scavenger being in amounts to provide the cable insulation with a charge density of less than 2 Coulomb/mm^3 measured by a pulsed electro acoustic method after 24 hours with either positive or negative 20 kV/mm applied.

8. High-voltage direct current cable semiconductive shield comprising:

a blend of or which is made from a blend of

(a) at least one ethylene copolymer, having a density of less than about 0.900grams/cubic centimeter, a melt index of from about 0.5 to about 10grams/10 minutes, a crystallinity of less than about 10 percent and a catalyst residue of less than about 1000 ppm, selected from the group consisting of

(i) ethylene/alpha olefin copolymers and

(ii) nonpolar, low crystalline ethylene copolymers selected from the group consisting of ethylene/propylene copolymer and ethylene/styrene copolymer and mixtures thereof;

(b) a carbon black having a low level of ionic species;

(c) at least one polar polymer modifier in an amount effective to provide a semiconductive shield made with the blend with an enhanced field conductivity enhanced space charge leakage at high fields relative to a semiconductive shield made with a blend which does not include a polar polymer modifier; and

(d) at least one ion scavenger in an amount effective to reduce ionic mobility relative to a semiconductive shield made with a blend, which does not include an ion scavenger.

9. The high-voltage direct current semiconductive shield of claim 8, wherein

(a) the polar polymer modifier is selected from the group consisting of (i) a polymer having a density of less than 0.900grams/cubic centimeter with at least one side group selected from the group consisting of hydroxyl, carboxyl, styrenic; (ii) a polymer having a density of less than 0.900grams/cubic centimeter and at least one side group which is a residue of maleic anhydride, vinyl acetate or vinyl acrylate; (iii) a polylactone resin and; (iv) mixtures thereof, and

(b) the ion scavenger has at least one chelating group.

10. The high-voltage direct current semiconductive shield of claim 8 or 9, wherein the ethylene copolymer is crosslinked.